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Signed: .....

Date: 19/05/2010

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AUTOMATION DEVELOPMENT OF WHEELED MOBILE ROBOT (WMR)

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Abstract

This project is to develop and implement a programming for a Wheeled Mobile Robot (WMR) and has a contribution to the mankind especially in search and rescue (SAR) operation by using PIC Microcontroller – PIC18F877A. The WMR is four wheeled mobile robot which are capable to follow the line and avoid the obstacles. The sensor used in this project is IR sensor. The IR sensors can detect the line and avoid the obstacle. The line following, consist of three sets of IR sensors and placed under the body of the WMR. For the obstacle avoidance, two sets of sensors are used. The sensors are located at the front of WMR. When the WMR met small range of distance the WMR will change the direction within turn left or right. But, when both of sensors detect the obstacle the WMR will stop. These IR sensors are connected to the PIC. The PIC receives an analog input signal from IR sensor and converts them into digital data. The data is then sending to the motor drive and the DC motor will decide the motion of the WMR. The programming will control the movement of the robot and the speed of the DC motors. The speed of the WMR is program through PWM (Pulse-Width-Modulation). The program is developed by using PIC Microcontroller embedded in MP Lab software. The program uses the language of C-code and compiled into HEX file. Downloading into PIC Microcontroller is carried out using UIC00A USB ICSP Programmer.

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